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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to a complexed soap constituent containing monoglyceride sulfonate, and a manufacturing method for the same. It is related with the method that the complexed soap containing the complexed soap constituent and monoglyceride sulfonate which contain monoglyceride sulfonate excellent in the moisture retainability and the using feeling of soap in more detail can be manufactured economically.

[0002]

[Description of the Prior Art]Generally, toilet soap soap-izes the fatty acid produced by disassembling fats and oils or fats and oils by a potassium hydrate, sodium hydroxide, etc., and is used for washing of the body. Since toilet soap expresses strong alkalinity in solution, when often using, the sebum ingredient of the skin is removed superfluously, a horny layer is softened, and it becomes a cause of a skin stimulus.

[0003]That is, if alkaline toilet soap is repeated and it comes to use it for a long time, the skin will dry, elasticity will be lost and it will become easy to start surface deterioration. In order to solve desiccation of the skin by use of such alkaline toilet soap, and the problem of surface deterioration, various additive agents which supply moisture and oil to the skin have been used into a toilet soap constituent. For example, a cosmetics ingredient like a superfatting agent, a moisturizer, and a plant extract was added with soap, and the trial which is going to ease desiccation of the skin occurred.

[0004]The moisturizer used for toilet soap maintains moisture at the surface layer of the skin, carries out the operation which prevents the loss of the moisture from the skin, and plays the role which forms the protective film of the skin and decreases the loss of moisture. The moisturizer generally used has glycerin, sorbitol, the natural oil for the skins, etc. These control evaporation of moisture and make desiccation of the skin ease by forming a coat in the uneven part of the skin surface dry by use of alkaline frequent soap, and forming a skin protective layer.

[0005]However, the existing moisturizer does not have the function to make external moisture stick to the skin, and has only a function as a temporary protective film simply. The existing moisturizer cannot be desorbed from the surface of the skin well because of physical influence, and the effect cannot be expected for a long time, but if the amount used is made to increase in order to maintain the effect, the demerit to which soap becomes soft including water will appear. That is, in almost all cases, it is temporary in the effect, and the existing moisturizer does not affect the physiological function of the

skin, but the result which is not preferred appears in the physical properties of soap.

[0006]In order to complement this problem, there are few stimuli to the skin and the concern about the manufacturing process which makes the soap of the usual fatty acid system contain a surface-active agent excellent in the moisturizing effect has increased. For example, the method of carrying out mixed use of negative ion, non-ion, and the ampholytic surface active agent at U.S. Pat. No. 5,683,683, and improving moisturization and the using feeling of a liquefied body detergent is indicated. If mixed use of the ampholytic surface active agent is carried out at complexed soap (combination bar), the characteristic which the field side active agent has shows synergy, controls desiccation of the skin, and can give a moisturizing effect to the skin, but. When the non-ion and ampholytic surface active agent in such a mixed surface-active agent were used for the excess amount, it discolored at the time of prolonged storage, and there was a problem that the degree of air bubbles fell.

[0007]By U.S. Pat. No. 4,695,395, complexed soap is made to contain the reed RUISE thionine acid chloride which is an anionic detergent, and it is indicated that the function of skin protection is given. Although reed RUISE thionine acid chloride has acidity or alkalinity lower than common fatty acid system soap, a skin stimulus is low since hydrophilic nature is high, and moisture retainability and a using feeling are excellent, water is easily absorbed with high solubility and there is demerit to which the physical properties of soap fall.

[0008]the manufacturing method with which a skin stimulus contains the reed RUISE thionine acid chloride which is few anionic surfactants as an auxiliary cleaning component in the South Korean publication of patent No. 12209 [95 to] if it sees about the manufacturing method of the complexed soap containing an active ingredient -- reference -- now, it is. However, this method is the process of manufacturing reed RUISE thionine acid chloride again to slurry form at an elevated temperature using the liquid phase and the solid phase of ion water etc., and mixing it with liquid soap, after carrying out line manufacture of the reed RUISE thionine acid chloride beforehand at a fixed standard using fatty acid and ISECHIONIN acid sodium.

Since the manufacturing method is complicated, there is demerit which is not economical.

[0009]

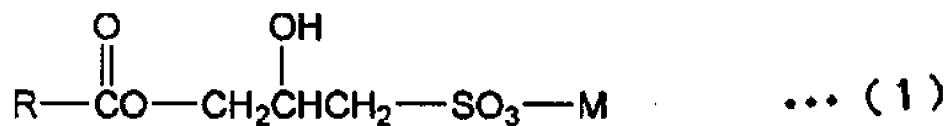
[Objects of the Invention]It is for this invention solving said problem, and the purpose of this invention improves soap melting into water and becoming soft, and there is in having the outstanding moisture retainability and using feeling and providing a complexed soap constituent with few stimuli on the skin. In other purposes of this invention manufacturing the complexed soap containing monoglyceride sulfonate excellent in a detergency, moisture retainability, and a using feeling, There is a process in providing the manufacturing method of the complexed soap containing the monoglyceride sulfonate which it can be easy and can be manufactured economically, maintaining the performance of complexed soap.

[0010]

[Summary of the Invention]The compound toilet soap constituent concerning this invention contains fatty acid system toilet soap and 2 to 35 % of the weight of monoglyceride sulfonate of a following chemical formula (1).

[0011]

[Formula 2]



[0012](R is the alkyl of the carbon numbers 7-21 among a formula, and M is sodium, potassium, triethanolamine, or ammonium)

Said compound toilet soap constituent contains 1 to 25 % of the weight of surface-active agents further. The complexed soap manufacturing method containing monoglyceride sulfonate of this invention, (a) Add and stir chlorohydroxysulfonate to the process;(b) this liquid soap which adds an electrolyte and a neutralizer to fatty acid, and manufactures fatty acid system liquid soap to it, Process; which manufactures mixed liquor-like soap, and (c) this mixed liquor-like soap are dried, and the process of manufacturing soap by a soap manufacturing installation is included.

[0013]Said chlorohydroxysulfonate is included one to 12% of the weight to said mixed liquor-like soap. The method of adding chlorohydroxysulfonate to said liquid soap is mixing with said liquid soap, after manufacturing a chlorohydroxysulfonate solution.

[0014]Said chlorohydroxysulfonate solution contains chlorohydroxysulfonate 20% of the weight or more, and the temperature of this chlorohydroxysulfonate solution is not less than 20 **. Said chlorohydroxysulfonate solution contains chlorohydroxysulfonate 30 to 45% of the weight, and, as for the temperature of this chlorohydroxysulfonate solution, it is preferred that it is 40-70 **.

[0015]The method of adding chlorohydroxysulfonate to said liquid soap adds powder chlorohydroxysulfonate to this liquid soap.

The active ingredient of this powder chlorohydroxysulfonate is 90 % of the weight or more.

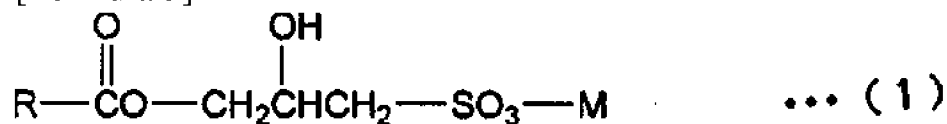
[0016]

[Embodiment of the Invention]Hereafter, this invention is explained in more detail. The compound toilet soap constituent of this invention contains usual fatty acid system toilet soap as a main detergent, and contains monoglyceride sulfonate of a following chemical formula (1) five to 20% of the weight preferably two to 35% of the weight as an auxiliary detergent.

[0017]As a typical example of monoglyceride sulfonate of the chemical formula (1) used for this invention, there are palm oil monoglyceride specific sulfonate, beef tallow monoglyceride specific sulfonate, palm oil monoglyceride specific sulfonate, etc. -- these -- one sort -- or two or more sorts can be mixed and it can use.

[0018]

[Formula 3]



[0019]In the above-mentioned chemical formula (1), R is an alkyl group of the carbon numbers 7-21, and M is sodium, potassium, triethanolamine, or ammonium. RCOO which has said R is obtained from independent or the mixed fatty acid derived from vegetable oil, such as animal oil, such as beef tallow or lard, palm oil and palm oil, and palm kernel oil. The monoglyceride sulfonate used for this invention is not limited to the method of the following [manufacturing method / the], although what is manufactured by the following method is used.

[0020]After manufacturing chlorohydroxyspecific sulfonate which is an intermediate using

epichlorohydrin, sodium sulfite which is reducing agents, etc., using the alkali salt of higher fatty acid, the ester interchange of the monoglyceride sulfonate used for this invention is carried out, and it is manufactured. the fatty acid derived as said higher fatty acid from the animal oil of beef tallow or lard, and the vegetable oil of palm oil, palm oil, or palm kernel oil -- it can be independent, or it can mix and can use.

[0021]The monoglyceride sulfonate manufactured as mentioned above, Since the ester group is included in intramolecular, the stimulus of the skin to the body is low, Although the melting point is lower than usual fatty acid system soap, the melting point is higher than the surface-active agent of others [the influence by the hydrogen bond between the negative charge of a hydroxy group and sulfonate], The physical properties over ***** with low solubility are good, and the time of initial use of soap and the moisture retainability which was excellent in the skin even if it carried out repeated use are maintained, and when the hydroxy group of a hydrophilic portion strengthens associative strength with a water molecule shows the characteristic which gives a soft using feeling.

[0022]in the compound toilet soap constituent of this invention -- as an auxiliary washing base -- monoglyceride sulfonate -- two to 35% of the weight, if 5 to 20 % of the weight is used preferably, The character which soap melts into water and becomes soft with the above characteristics is improved, and the complexed soap constituent excellent in moisture retainability and a using feeling can be manufactured. The amount used is said complexed soap constituent. Although soap is soft and ** is good in it being less than 2 % of the weight, if the quantity which quality becomes low and, on the other hand, exceeds 35 % of the weight is used in moisture retainability and a using feeling, although moisture retainability and a using feeling are excellent, the softness as toilet soap will fall.

[0023]As usual fatty acid system toilet soap used for this invention, Independent or the thing which was mixed and was neutralized by sodium hydroxide, a potassium hydrate, and triethanolamine can be used for the fatty acid obtained from animal fat and oil, such as beef tallow and lard, and vegetable oil and fat, such as palm oil, palm kernel oil, palm oil, and palm stearin. as a typical example of usual fatty acid system toilet soap, there are beef tallow hard soap, palm oil soap, etc. -- these -- one sort -- or two or more sorts can be mixed and it can use.

[0024]The reed RUISE thionine acid chloride which is a surface-active agent usually elsewhere used for compound toilet soap within limits which do not fall the effect of this invention as a complexed soap constituent of this invention, Laurate sodium sulfate (sodium laureth sulfate), Alkyl sulfate, such as sodium lauryl sulfate, alkyl sulfo amber acid chloride (alkyl sulfosuccinate), Alkyl glyceryl ether sulfonate, an acyl sarcosine acid salt, In consideration of the characteristic that the field side active agent has salts, such as acyl taurate, alkyl sulfo acetate, and alkyl ether sulfate, two sorts - three sorts or more can be mixed and used from ***** of monoglyceride sulfonate of this invention by little 1 to 25% of the weight of within the limits.

[0025]In order to manufacture bar soap with the complexed soap constituent of this invention, the complexed soap constituent of this invention can mix and use one or more sorts of compounds chosen from the group which consists of a binding material, a plasticizer, and an excipient. By giving associative strength and plasticity to soap, a binding material and a plasticizer raise the workability of soap manufacture, and after soap is manufactured, they affect physical properties, such as the degree of air bubbles, ** and others at the time of hardness and use, and smoothness (smoothness). The high-class fatty alcohol generally used as these binding materials and a plasticizer, Higher fatty acid, hydrogenate oil and fat, paraffin wax, polyester, a polyethylene glycol, sodium stearate, hardening castor oil, fat alkyl

ketone, etc., such as palm oil fatty acid, can be used. As an excipient, what plays the role which maintains the internal structure stability of a final product or the hardness of a product, usual, dextrin, starch, a salt, talc, etc. can be used.

[0026]A sequestering agent, other additive agents, etc., such as coloring matter like white pigments, such as about 5 to 20 % of the weight of moisture which is an ingredient used for usual toilet soap, and a titanium dioxide, perfume, an antioxidant, and ethylenediaminetetraacid, can be further used for the complexed soap constituent by this invention. However, other ingredients except moisture are used for a minute amount.

[0027]The complexed soap explained by this invention can be manufactured by various methods. For example, as a manufacturing method of usual complexed soap, Add a detergent and an additive agent to a mixer (mixer), and fixed time mixing is carried out, After manufacturing some or the whole of an additive agent except the method of manufacturing at a general soap process after re-mixing uniformly at a milling (milling) process, and the main detergent by the slurry (slurry) and mixing this with the main washing base, there are the method of manufacturing by the manufacturing process of common soap, etc.

[0028]In the example of this invention, a complexed soap constituent, Add fatty acid system toilet soap, monoglyceride sulfonate, and other additive agents to a mixer, and it mixes for about 5 minutes to it, After mixing uniformly by the three-step roll mill (roll mill), it is manufacturing through the striking process which is a process tableted in order to make mixing, shaping, extrusion, and a form with the manufacturing method of usual soap, but the complexed soap manufacturing method of this invention is not limited to this.

[0029]If this invention persons manufacture again to a roll mill or slurry form and make it contain with soap after they manufacture monoglyceride sulfonate which is a low-stimulus nature anionic surfactant as an auxiliary washing base with common fatty acid system soap, It turned out that a complexed soap constituent excellent in general physical properties, moisture retainability, etc. can be manufactured. However, since this was reworked at the milling process or the slurry process with common fatty acid system soap and soap was manufactured after manufacturing monoglyceride sulfonate which is an auxiliary cleaning component, the aforementioned method was not a manufacturing method of economical soap, either.

[0030]In order that this invention persons may manufacture the complexed soap which monoglyceride sulfonate which is an auxiliary detergent contained by an economical method, If chlorohydroxysulfonate (henceforth a chlorosulfonic acid salt) is added to the liquid soap which leaves fatty acid by the manufacturing process of soap and a fixed reaction condition is given to it as a result of repeating continuous research, The complexed soap which monoglyceride sulfonate contains can be manufactured, The result of having measured the soap manufactured at milling or a slurry process, the physical properties at the time of water absorption, moisture retainability, etc. after the quality of soap also compounded monoglyceride sulfonate, It turned out that they can be equivalent or can maintain the level beyond it, and the manufacturing method of the complexed soap containing monoglyceride sulfonate of this invention was completed.

[0031]The manufacturing method of the complexed soap containing monoglyceride sulfonate of this invention, (a) Add and stir chlorohydroxysulfonate to the process;(b) this liquid soap which adds an electrolyte and a neutralizer to fatty acid and manufactures fatty acid system liquid soap to it, The process of drying process; which manufactures mixed liquor-like soap, and (c) this mixed liquor-like

soap, and manufacturing soap by a soap manufacturing installation is included.

[0032]As for said fatty acid system liquid soap, in this invention, it is preferred to add an electrolyte and a neutralizer to fatty acid, and for it to be manufactured, and to make it the content of moisture be 20 to 35% of the weight. the fatty acid in which said fatty acid was obtained from vegetable oil and fat, such as animal fat and oil, such as beef tallow and lard, or palm oil, palm kernel oil, palm oil, and palm stearin, -- independent, it mixes and uses.

[0033]Sodium chloride is preferred especially, using an alkaline metal as said electrolyte. It is preferred to use the 0.01 to 1 % of the weight to fatty acid system liquid soap, and when 0.1 to 0.5 % of the weight is used for said sodium chloride, it is still more preferred. It is preferred to use sodium hydroxide or a potassium hydroxide solution 25 to 50% (w/w) as said neutralizer.

[0034]As for fatty acid, electrolyte, and neutralizer which are used for manufacture of said liquid soap, it is preferably preferred to make it react at 60-80 ** 50-90 **, and the liquid soap generated by said reaction is preferably good to maintain [75-100 **] at the temperature of 85-95 **. Since temperature will generally rise by an exoergic reaction if a neutralizer is added to fatty acid, the temperature of these additives must be adjusted suitably and the temperature of liquid soap must be maintained.

[0035]It is preferred to use 1 to 12 % of the weight to the mixed liquor-like soap which mixes and manufactures said fatty acid system liquid soap and a chlorosulfonic acid salt, and when 2 to 7 % of the weight is used for said chlorosulfonic acid salt used for this invention, it is still more preferred. There is too little quantity of monoglyceride in the manufactured complexed soap, and on the other hand, the viscosity or the phase of mixed liquor-like soap changes and it is sometimes difficult, when it exceeds 12 % of the weight, when the quantity of said chlorosulfonic acid salt is less than 1 % of the weight to manufacture smoothly by the manufacturing installation of usual fatty acid system soap.

[0036]An example of the manufacturing method of said chlorosulfonic acid salt used for this invention is as follows. Sodium sulfite which is a reducing agent (sodium sulfite), After mixing sodium bisulfite (sodium bisulfite) or the sodium metabisulfite (so-diummethabisulfite) with water and making it dissolve, add, epichlorohydrin is made to react and a chlorosulfonic acid salt is manufactured. The structural formula of the chlorosulfonic acid salt manufactured by said method is as follows (2).

[0037]

[Formula 4]



[0038]In the above-mentioned chemical formula (2), M is sodium, potassium, ammonium, or triethanol ammonium. In this invention, methods of adding a chlorosulfonic acid salt include the method (henceforth a continuous system process) of mixing with liquid soap, and the method (henceforth a batch process process) of supplying a powdered chlorosulfonic acid salt to liquid soap, after manufacturing chlorosulfonic acid salting in liquid, but. This inner continuous system process is more preferred.

[0039]The chlorosulfonic acid salting in liquid used at said continuous system process dissolves and manufactures a chlorosulfonic acid salt in water, this solution contains a chlorosulfonic acid salt 30 to 45% of the weight preferably 20% of the weight or more, and it is preferred the temperature of not less than 20 ** and to manufacture at the temperature of 40-70 ** preferably. As chlorosulfonic acid salting

in liquid used here, Besides water, propylene glycol, glycerin, sorbitol, and polyhydric alcohol like polyoxy ethylene glycol, Although oil like a mineral oil, and caustic alkali of sodium (sodium hydroxide), caustic potash (potassium hydrate) and a neutralizer like triethanolamine can be mixed and used, if possible, it is preferred to manufacture so that a chlorosulfonic acid salt may not be in a supersaturation state.

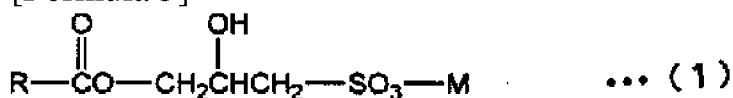
[0040]Said batch process manufacturing method supplies a fixed quantity of powdered chlorosulfonic acid salts to weight and the liquid soap of capacity known, It is the method of making it complexed soap contain monoglyceride, and it is powdered and a manufacturing process is the same as a continuous system process except for the thing which is not in the state of a solution about a chlorosulfonic acid salt and to add. The active ingredient of the powdered chlorosulfonic acid salt used for a batch process process is 95 % of the weight or more preferably 90% of the weight or more.

[0041]In the manufacturing process of the mixed liquor-like soap of this invention, preferably, liquid soap and the temperature of chlorosulfonic acid salting in liquid are managed suitably, and 75-100 ** of temperature of mixed liquor-like soap adds so that it may have the temperature of 85-95 **. especially the manufacturing method of the complexed soap constituent of this invention should make reference -- a batch process process having a relation equivalent to a continuous system process, and, as long as there is nothing. In order to add a chlorosulfonic acid salt to liquid soap and to maximize the yield of monoglyceride sulfonate, it is required to manage appropriately the temperature, agitating speed, and mixing time of mixed liquor-like soap, and to manufacture them with the manufacturing method and conditions of fatty acid system liquid soap and chlorosulfonic acid salting in liquid.

[0042]The monoglyceride sulfonate generated in said stirring process can be written with a following chemical formula (1).

[0043]

[Formula 5]



[0044]In said chemical formula (1), R is an alkyl group of the carbon numbers 7-21, and M is sodium, potassium, triethanolamine, or ammonium. Although said agitating speed changes with capacity of the reactor which mixed liquor-like soap contained, if it is the agitating speed which can have touch area in which mixed liquor-like soap is sufficient in the case of which, there will be no big difference in the generated amount of the monoglyceride sulfonate which it is going to include in the constituent of this invention. If possible, it is preferred to carry out high speed stirring.

[0045]In order for mixed liquor-like soap to generate monoglyceride sulfonate, fixed mixing time is required with temperature and agitating speed, but. Since yield is affected by existing by an unreacted state, without the chlorosulfonic acid salt added when mixing time was not enough taking part in a reaction, and hydrolyzing the generated monoglyceride sulfonate, It is preferred to stir mixed liquor-like soap preferably about 20 minutes or more for 30 minutes - 4 hours.

[0046]Although a part is hydrolyzed at alkali and an elevated temperature and a part of dihydroxypropanesulfonic acid salt and chloridation NATORIU are generated as a side reaction thing, the chlorosulfonic acid used in this invention, and the generated monoglyceride sulfonate, If a chlorosulfonic acid salt is used within the limits of this invention, it is not a level which affects the quality as bar soap which has manufacture and commercial worth of soap.

[0047]To the complexed soap constituent of this invention, the additive agent which can be used for toilet soap, i.e., perfume, coloring matter, an antioxidant, a sequestering agent, etc. can usually be added, after manufacturing the manufacturing process and detergent of complexed soap. If the mixed liquor-like soap of this invention is dried and soap is manufactured by a soap manufacturing installation, the complexed soap containing monoglyceride sulfonate will be manufactured. in the above, all of the drying method which is usually alike and is used, and the usual soap manufacturing installation can be used for a drying method and a soap manufacturing installation.

[0048]

[Example]Hereafter, the example and comparative example of this invention are indicated. However, it is for the following example illustrating this invention, and this invention is not limited to the following example.

[0049]

[Example 1] 76.65 % of the weight of beef tallow sodium (sodium tallow oil) / palm oil soap (coco-oil soap), 6.0 % of the weight of palm oil monoglyceride specific sulfonate (sodium coco monoglyceride sulfonat-e), 3.0 % of the weight of palm oil fatty acid, 1.0 % of the weight of salts, 12.0 % of the weight of moisture, After mixing uniformly 0.05 % of the weight of ethylenediaminetetraacid, 0.3 % of the weight of titanium dioxides, and the constituent that consists of 1.0 % of the weight of perfume by the fusion machine and a three-step roll mill, it struck through shaping and an extrusion process by the manufacturing installation of usual fatty acid system toilet soap, and soap was manufactured.

[0050]

[Examples 2-3] Except for having changed the amount of each ingredient used, as shown in the following table 1, it carried out like said Example 1, and soap was manufactured.

[0051]

[Comparative examples 1-7] The ingredient shown in the following table 1 was used by the ratio shown in the following table 1, was carried out like said Example 1, and soap was manufactured.

[0052]

[Table 1]

{単位：重量%}

	実 施 例 1	実 施 例 2	実 施 例 3	比 較 例 1	比 較 例 2	比 較 例 3	比 較 例 4	比 較 例 5	比 較 例 6	比 較 例 7
牛 脂 ナ ト リ ウ ム ノ ヤ シ 油 石 鹼	76.65	70.65	64.65	85.65	82.65	82.65	76.65	64.65	79.65	73.65
ヤ シ 油 モ ノ グ リ セ リ ド ス ル フ ォ ン 酸 ナ ト リ ウ ム	6.0	12.0	18.0	0	0	0	0	0	0	0
ヤ シ 油 イ セ チ オ ニ ン 酸 ナ ト リ ウ ム	0	0	0	0	0	0	6.0	18.0	0	0
ラ ウ レ ー ト 硫 酸 ナ ト リ ウ ム	0	0	0	0	0	0	0	0	6.0	12.0
ヤ シ 油 脂 肪 酸	3.0	3.0	3.0	0	3.0	0	3.0	3.0	0	0
グ リ セ リ ン	0	0	0	0	0	3.0	0	0	0	0
塩	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
水分	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
エ チ レ ン ジ ア ミ ン テ ト ラ 酸	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
二 酸 化 チ タ ン	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
香料	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

[0053]

[Examples 4-7] In the quantity shown in the following table 2, the ingredient shown in the following table 2 was used, the same method as said Example 1 was enforced, and soap was manufactured.

[0054]

[Comparative examples 8-11] In the quantity shown in the following table 2, the ingredient shown in the following table 2 was used, it carried out like said Example 1, and soap was manufactured.

[0055]

[Table 2]

	実施例4	実施例5	実施例6	実施例7	比較例8	比較例9	比較例10	比較例11
牛脂ナトリウム／ヤシ油石鹼	81.65	48.65	77.65	75.65	83.65	44.65	79.65	79.65
ヤシ油モノグリセリドスルホン酸ナトリウム	3.0	32.0	0	0	1.0	38.0	0	0
牛脂ナトリウム／ヤシ油モノグリセリドスルホン酸塩	0	0	6.0	6.0	0	0	0	0
ラウレート硫酸ナトリウム	0	0	0	2.0	0	0	0	0
ヤシ油脂肪酸	1.0	5.0	2.0	2.0	1.0	3.0	0	6.0
ソルビトール	0	0	0	0	0	0	6.0	0
塩	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
水分	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
エチレンジアミンテトラ酸	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
二酸化チタン	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
香料	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

[0056]The softness, the moisture retainability, and the using feeling of the complexed soap manufactured by the method of said Examples 1-7 and the comparative examples 1-11 were measured with the following test methods, and the appearance after absorbing absorptivity and water was compared about the softness of soap.

[Experiment 1] It takes out, after thrusting water absorption test soap W_1 into pin W_2 of weight known and immersing it in a 25 ** homoiothermal tank for 4 hours, and after drying with a 20-25 ** soap stick drying stand for 1 hour, the weight W_{30} is measured. Next, water absorbency was measured according to the following expression (1), and the result was shown in the following table 3.

[0057]

[Equation 1]

$$\text{吸水度(\%)} = [(W_2 + W_3) - (W_1 + W_2)] / W_1 \times 100$$

[0058]The more the value of water absorbency is high, the capability to contain water becomes large and, the more physical properties mean not being good. The water absorbency of usual fatty acid system toilet soap is generally 5 to 25%.

[Experiment 2] At the time of the examination of the water absorbency of the appearance aforementioned experiment 1 after water absorption, it took out, after soap was immersed at 25 ** for 4 hours, and the following standard estimated the appearance of soap, or a surface state.

[0059][Valuation basis]

O : soap does not swell but appearance is beautiful.

** : Soap swells for a while and some uneven patterns etc. occur in appearance.

x : The part which soap swelled violently and absorbed water flows.

[Experiment 3] The soap manufactured according to the moisture retainability examination examples 1-7 and the comparative examples 1-11 was diluted with distilled water, and 4% of solution was made, and after taking 0.5 ml of this solution, applying to the part (5 cm x 5 cm) inside an arm for 1 minute, and waiting for 30 seconds, it washed with the stream for 10 seconds. It compared with the amount of

possession of the moisture before washing according to the following expression 2, after washing twice (the 1st order/[secondary]) with three time intervals on the 1st, receiving each soap and measuring [30-minute] the amount of possession of moisture.

[0060]

[Equation 2]

$$\text{水分保有量(\%)} = [(\text{洗う前の保有量} - \text{洗った後の保有量}) / \text{洗う前の保有量}] \times 100$$

[0061]The apparatus used for the exam is SUKIKON 200 (Skicon 200), and the examination was carried out in 25 ** and the air-conditioned room of 50% of relative humidity.

[Experiment 4] After the man and the examiner of 15 women each used the soap composition manufactured by the method of the using feeling examination examples 1-7 and the comparative examples 1-11 by the method of using toilet soap ordinarily with 25 ** tap water, mark were given on the standard shown in the following table 3. The average value was shown below.

[0062]

[Table 3]

	使用感
5点	石鹼の柔らかさと使用感触とが非常に良い。
4点	石鹼の柔らかさと使用感触とが少し良い。
3点	石鹼の柔らかさと気泡度とが普通である。
2点	石鹼の柔らかさと使用感触とが少し悪い。
1点	石鹼の柔らかさと使用感触とが非常に悪い。

[0063]The value of the general using feeling of fatty acid system toilet soap is 3.0 or more. The water absorbency measured by said method, the appearance after absorbing water, a using feeling, and moisture retainability (primary order [2nd]) were measured, and the result was shown in the following tables 4 and 5.

[0064]

[Table 4]

	実施例1	実施例2	実施例3	比較例1	比較例2	比較例3	比較例4	比較例5	比較例6	比較例7
吸水度 (%)	16.2	18.3	20.6	18.5	17.3	29.5	21.4	32.3	31.3	43.5
吸水後の外観	○	○	○	○	○	△	○	X	X	X
使用感	4.0	4.3	4.5	3.1	3.5	3.8	4.0	4.1	—	—
保湿度(1次) [%]	59.3	63.8	71.5	41.2	44.5	51.3	52.5	60.7	—	—
保湿度(2次) [%]	54.2	59.8	67.3	33.5	38.4	43.5	45.6	54.0	—	—

[0065]

[Table 5]

	実施例 4	実施例 5	実施例 6	実施例 7	比較例 8	比較例 9	比較例 10	比較例 11
吸水度 [%]	14.8	23.1	16.3	21.8	17.5	29.5	34.3	15.2
吸水後の外観	○	○	○	○	○	△	×	○
使用感	3.6	4.1	3.9	4.0	3.3	4.2	—	3.7
保湿力(1次) [%]	54.1	74.5	58.3	59.5	47.1	75.0	—	48.5
保湿力(2次) [%]	49.3	71.6	53.0	54.1	40.7	73.1	—	43.5

[0066] If monoglyceride sulfonate is used for usual fatty acid system soap within the limits of this invention as an auxiliary detergent, or it mixes with other surface-active agents and uses as shown in the aforementioned tables 4 and 5, It turns out that physical properties after excelling in the quality of early moisture retainability and the moisture retainability by an intermittent periodic duty, and a using feeling and absorbing water compared with the soap which added the moisturizer etc. to usual fatty acid system soap and/or this, and the quality of appearance as well as usual fatty acid system soap are maintainable.

[0067] It turns out that the physical properties at the time of water absorption are superior to the soap containing the reed RUISE thionine acid chloride which is a surface-active agent generally used for complexed soap, or alkyl sulfate, and the complexed soap constituent of this invention understands that the moisture retainability at the time of initial use and the moisture retainability by an intermittent periodic duty are also good. However, if there is little amount of the monoglyceride sulfonate used, general physical properties are good, but. A moisturizing effect and the improvement effect of the quality of a using feeling are small, and when a fixed quantity of the amount of this used contains above, although the moisturizing effect is excellent, it is understood that the appearance after absorbing water with physical properties when water is absorbed is not good.

[0068] Manufacture of chlorosulfonic acid salting in liquid [0069]

[Example 8] After supplying pure water 70 weight section to the reactor and raising temperature to 35 **, chlorosulfonic acid salt 30 weight section was added, and chlorosulfonic acid salting in liquid was manufactured.

[0070]

[Examples 9-11] The chlorosulfonic acid salting in liquid of Example 9 - Example 11 was manufactured by the same method as Example 8 at an ingredient and temperature as shown in Table 6. However, before glycerin and a potassium hydrate added the chlorosulfonic acid salt, they were thrown in.

[0071]

[Table 6]

区分	原料	実施例 8	実施例 9	実施例 10	実施例 11
処方 (重量部)	純水	70	60	60	52
	クロロスルホン酸塩	30	40	35	45
	グリセリン	—	—	5	—
	水酸化カリウム	—	—	—	3
製造温度	(℃)	35	60	70	70

[0072]Manufacture of the complexed soap containing monoglyceride sulfonate[0073]

[Example 12] After mixing beef tallow and palm oil fatty acid by the ratio of 80:20 (w/w), sodium chloride 0.25 weight section was added, and the liquid soap of 100 95 ** weight sections was manufactured using sodium hydroxide solution so that the content of the moisture of liquid soap might become 30 weight sections. In other mixers, the chlorosulfonic acid salting in liquid which the chlorosulfonic acid salt contained 40% of the weight in pure water was manufactured at 60 **, a fixed quantity of liquid soap of 90 weight sections and chlorosulfonic acid salting in liquid of ten weight sections were thrown in with the continuous mixer, and the mixed liquor-like soap of 100 90 ** weight sections was manufactured. It dried, after making said mixed soap react for about 180 minutes at 100 rpm with a homogeneous-mixing machine (HomoMixer), and the detergent which contains moisture 13% of the weight was manufactured. Perfume 1.2 weight section and titanium dioxide 0.3 weight section were added to said detergent 100 weight section, and complexed soap was manufactured through the process of shaping, extrusion, and striking by the manufacturing installation of usual fatty acid system soap.

[0074]

[Examples 13-15] Example 13 - Example 15 manufactured the complexed soap which contains monoglyceride sulfonate by the same method as Example 12 except having manufactured on an ingredient and conditions as shown in Table 7.

[0075]

[Table 7]

区分	成分または製造条件	実施例 12	実施例 13	実施例 14	実施例 15
洗浄剤成分 (重量部)	牛脂ナトリウム／ ヤシ油石鹼溶液	90.0	96.0	92.3	85.0
	クロロスルホン酸塩溶液	10.0	4.0	7.7	15.0
添加剤 (重量部)	香料	1.2	1.2	1.2	1.2
	二酸化チタン	0.3	0.3	0.3	0.3
反応条件	混合液状石鹼の温度(℃)	95	92	88	85
	攪拌速度(rpm)	100	600	1,200	30
	攪拌時間(分)	180	120	60	240
収率	理論値対比の生成率(%)	71.5	74.4	82.6	70.1

[0076]

[Example 16] After mixing beef tallow and palm oil fatty acid by the ratio of 60:40 (w/w), 0.10 weight sections of sodium chloride were added, and 92 ** 100 weight-section liquid soap was manufactured

using sodium hydroxide solution so that the content of the moisture of liquid soap might serve as 33 weight sections. After adding 90 weight sections of said liquid soap to a mixer, powder chlorosulfonic acid salt 10.0 weight section was added to the mixer, and the mixed liquor-like soap of 100 92 ** weight sections was manufactured. It dried, after making said mixed liquor-like soap react for about 60 minutes at 600 rpm with a mixer, and the detergent which moisture contained 13% of the weight was manufactured. Perfume 1.2 weight section and titanium dioxide 0.3 weight section were added to said detergent 100 weight section, and complexed soap was manufactured through the process of shaping, extrusion, and striking by the usual fatty acid system soap manufacturing installation.

[0077]

[Example 17] Soap was manufactured by the same method as Example 16 by an ingredient and manufacturing conditions which are indicated in Table 8.

[0078]

[Reference example 1] Beef tallow sodium / palm oil soap 77.0 weight section, beef tallow sodium / palm oil monoglyceride sulfonate 6.0 weight section, Beef tallow / palm-oil-fatty-acid 1.5 weight section, sodium chloride 1.0 weight section, moisture 13.0 weight section, After mixing uniformly the constituent which consists of titanium dioxide 0.3 weight section and perfume 1.2 weight section by the KO fusion machine and a three-step roll mill, it struck through shaping and an extrusion process by the manufacturing installation of usual fatty acid system toilet soap, and soap was manufactured.

[0079]

[Reference example 2] Except for what consists of an ingredient as shown in Table 8, soap was manufactured by the same method as the reference example 1.

[0080]

[Table 8]

区分	成分または製造条件	実 施 例 16	実施例 17	参 考 例 1	参 考 例 2
洗 浄 剤 成分 (重量部)	牛脂ナトリウム／ヤシ油石 鹼 溶 液 (25～35 重量%水分含有)	90.0	95.0	—	—
	粉末クロロスルホン酸塩	10.0	5.0	—	—
	牛脂ナトリウム／ヤシ油石 鹼	—	—	77.0	72.0
	牛脂ナトリウム／ヤシ油モノグリセリド スルホン酸塩	—	—	6.0	10.0
	タロー—オイル(牛脂)／ココオイル (ヤシ油)脂肪酸	—	—	1.5	2.0
添加剤 (重量部)	香料	1.2	1.2	1.2	1.2
	二酸化チタン	0.3	0.3	0.3	0.3
	塩化ナトリウム	—	—	1.0	1.5
	水分	—	—	13.0	13.0
攪 拌 条 件	混合液状石 鹼 の 温 度 (°C)	92	94	—	—
	攪拌速度	600	50	—	—
	攪拌時間	60	120	—	—
収 率	理論値対比の生成量(%)	78.5	74.5		

[0081][Experiment 5] the fixed weight W1 of the complexed soap containing the monoglyceride

sulfonate manufactured by the water absorbency experiment aforementioned examples 12-17 and the reference examples 1-2, After having taken out after thrusting into the pin W2 of weight known and being immersed in the tank of 25 °C ordinary temperature for 4 hours, and making it dry with a 20-25 °C soap stick drying stand for 1 hour, the weight W3 was measured. Water absorbency was calculated with the following expression (3), and showed the result in Table 9.

[0082]

[Equation 3]

$$\text{吸水度(\%)} = [(W2 + W3) - (W1 + W2)] / W1 \times 100$$

[0083]The more the value of water absorbency is large, the more it means that the capability to contain water becomes large and physical properties get worse. The water absorbency of usual fatty acid system toilet soap is generally 5 to 25%.

[Experiment 6] After the soap of Examples 12-17 and the reference examples 1-2 was immersed at 25 °C for 4 hours at the time of the experiment of the water absorbency of the visual examination experiment aforementioned experiment 5 after water absorption, it took out, the following standard estimated the appearance of soap, or a surface state, and the result was shown in Table 9.

[0084][Valuation basis]

Fitness: Soap does not swell but appearance is beautiful.

Common: Soap swells for a while and some uneven patterns occur in appearance.

bad : -- the part which soap swelled violently and absorbed water flows.

[Experiment 7] The soap manufactured according to the moisture retainability examination examples 12-17 and the reference examples 1-2 was diluted with distilled water, and 4% of solution was made, and after taking said 0.5 ml of solution, applying to the 5 cm × 5 cm part inside an arm for 1 minute, and waiting for 30 seconds, it washed with the stream for 10 seconds. After washing with water, the amount of possession of moisture was measured 30 minutes afterward about each soap, the amount of possession of moisture was measured according to the expression 4, and the result was shown in Table 9.

[0085]

[Equation 4]

$$\text{水分保有量(\%)} = ((\text{洗う前の保有量} - \text{洗った後の保有量}) / \text{洗う前の保有量}) \times 100$$

[0086]The apparatus used for the exam is SUKIKON 200 (Skicon 200), and the examination was carried out in 25 °C and the air-conditioned room of 50% of relative humidity. The amount of moisture possession of usual fatty acid system soap is 45 to 55% mostly.

[0087]

[Table 9]

区分	吸水度(%)	外觀検査	保湿力(%)
実施例 12	15.2	良好	65.1
実施例 13	18.0	良好	55.1
実施例 14	20.5	良好	60.5
実施例 15	16.5	良好	68.6
実施例 16	20.2	良好	70.5
実施例 17	17.6	良好	64.1
参考例 1	18.5	良好	60.5
参考例 2	16.5	良好	68.6

[0088]The water absorbency of the soap of Examples 12-17 is the same as that of 16.5 to 18.5% of the reference examples 1-2 at 15.2 to 20.5% as shown in the aforementioned table 9, The result of the visual examination was altogether good like the reference examples 1-2, and was the same as that of 60.5-68.6 of the reference examples 1-2 at 55.1 to 70.5% also in moisture retainability. Especially Example 16 excelled [moisture retainability] in 70.5% dramatically. Therefore, it is shown that the aforementioned result is the level as the quality of the soap manufactured according to the reference examples 1-2 with same quality of the soap manufactured according to Examples 12-17.

[0089]On the other hand, the soap containing monoglyceride sulfonate of said Examples 12-17 and the reference examples 1-2 means that moisture retainability is superior to 45 to 55% which is the moisture retainability of usual fatty acid system soap as shown in Table 9.

[0090]

[Effect of the Invention]As mentioned above, the complexed soap constituent of this invention is excellent in general physical properties, such as softness of soap, and moisture retainability and a using feeling are dramatically excellent also in the case of an intermittent periodic duty. The soap containing the monoglyceride sulfonate which the manufacturing method of the soap containing monoglyceride sulfonate of this invention is simple for the process, and it is economical as mentioned above, and was produced by this invention is obtained by the multi stage story method. Thus, even if it compares the obtained soap with the soap which manufactured monoglyceride sulfonate previously and was manufactured in accordance with the method of subsequently mixing with a liquid soap solution, it is equivalent or a quality thing beyond it.

[Translation done.]